

Navajo Abandoned Uranium Mine

Site Screen Report

This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.

The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.

Joleo Mine AUM Site

Navajo AUM Northern Region

Prepared by:

Weston Solutions, Inc.

Contract: W91238-06-F-0083

12767.063.496.1111

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Part I Site Identification, Location and Status**Site Names and ID numbers as applicable****Mine ID:** 467**Map ID:** N259**CERCLIS:** NNN000908899**Navajo Abandoned Mine Land Reclamation Program:** NA-0326**Local name / Aliases:** None**Chapter and local area:** Round Rock Chapter**County:** Apache**State:** Arizona**Lat/Long:** 36.4882325167 N / -109.23580734 W**Nearby road and highway:** Indian Route 33**Local Post Office:** Lukachukai, AZ**Surface Land Status: check one or more and provide ownership and contact information below**

Tribal Trust Land ☒
Private ☐
Bureau of Land Mgmt ☐
State ☐

Public lands ☐
Tribal Fee Land ☐
Allotment ☐
Fee land ☐

Subsurface Mineral Rights:

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

Claim and operator information:

The mine site surface land status is classified as Tribal Trust Land. Historical documents showed the operator of the mine as Walter Duncan from 1952 to 1954. No other historical ownership / lease information was identified in the EPA/AUM database.

Number of residential structures within 200 feet of mine:

None

Estimated volume of mine waste onsite:7,532 yd³

Part II Summary of radiological readings

Highest gamma radiation measurement:

979,487 counts per minute (cpm)

Describe any other radiological measurements:

A total of 2,339 gamma radiation measurements were collected from the mine site, ranging from 8,592 cpm to 979,487 cpm. Measurements in the vicinity of the waste debris piles were found at levels ranging from 120,000 cpm to 360,000 cpm, at the adits ranging from 150,000 to 700,000 cpm, and at the exposed ore at levels of approximately 970,000 cpm. The measurements are represented in Figures 1 and 2.

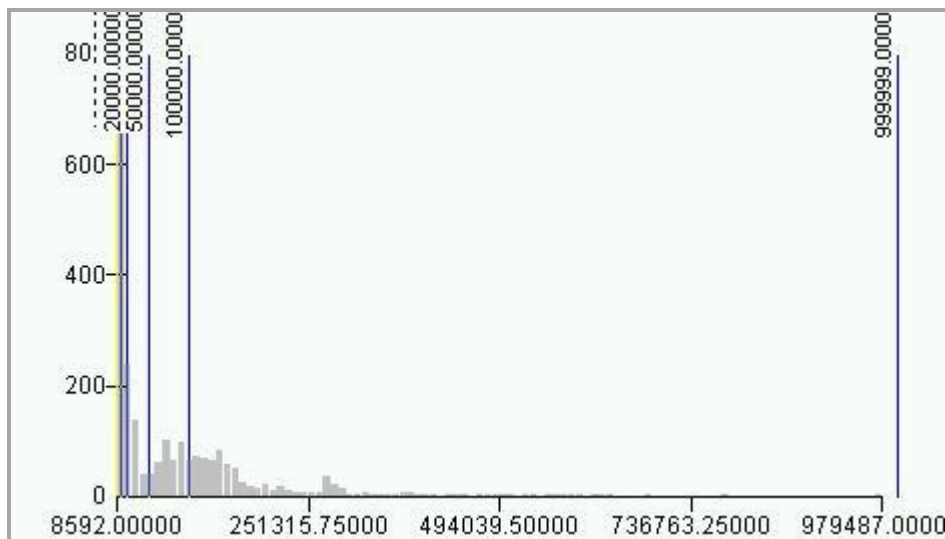
Background Locations

#1 10,407 cpm

Average background = 10,407 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	2339
Minimum:	8592.00000
Maximum:	979487.00000
Sum:	223713190.00000
Mean:	95644.80120
Median:	49258.00000
Standard Deviation:	124618.20165

Part III Status of Reclamation and Mine Waste

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes Waste Pile onsite : Yes

NAMLRP Project Number: NA-0326

NAMLRP Mine features: 8 Portals

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:**Adits**

7 stone sealed adits throughout center of site

Waste Piles

Three waste piles observed on the east side of site, waste debris sloughs down cliff to the southeast: 200' x 200'; 15' x 15'; 15' x 15'; 15' x 15', with a total estimated volume of 7,532 yd³

Pits

None

Shafts

None

Other Debris and Mine Features

Some exposed ore in the wall near the northeast facing adits

Part IV

Site observations and Environs

Observed Structures: list number of and describe human habitation status of structures at the following distances from mine:

0 to 200 feet: None

200 feet to 0.25 mile: None

Observed Public or commercial structure: list and describe all schools, clinics, Chapter Houses, places of business and any other structure used by members of the community at the following distances:

0 to 200 feet: None

200 feet to 0.25 mile: None

Levels measured around the perimeter(s) of the identified structure(s):

None

Observed water sources: list the number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine:

0 to 0.25 miles: None

0.25 miles to 4 miles: None

Sensitive environments: note and describe all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation.

None observed

Known Site History: include information from interviews with Chapter officials and residents. Note information on mine ownership, type of mining operation, period of operation, known amount of production, and any other information as provided.

Joleo Mine consists of an area of 36,623.79 m². The mine was identified as being operational from 1952 to 1954. Historical documents showed the operator of the mine as Walter Duncan from 1952 to 1954. While operational, the mine had a total reported production volume of 10,751 tons. No other historical information or any additional ownership / lease information was identified in the EPA/AUM database.

Part V Response Action Summary

Site Name(s): Joleo Mine

Chapter: Round Rock

Decision Criteria

Is there an unreclaimed waste pile at the site? Yes

At what distance from the waste pile is the nearest residential structure located? None

At what distances from the waste pile are there potential drinking water sources? None

Is there a reclamation cap or sealed adit in place at the site? No

Is the cap/seal functionally intact? None

Is the cap/seal sufficiently degraded to create a concern about releases? No

At what distance from the cap/seal is the nearest domestic structure located? None

At what distance from the cap/seal is the nearest domestic drinking water source? None

Summary of emergency response factors

None

Summary hazard ranking system factors

None

Summary of reclamation factors

Unreclaimed waste piles; 7 sealed adits; exposed ore

Part VI Photos



Photo 1. Large northwest facing sealed adit



Photo 2. Small northwest facing adit



Photo 3. Northeast facing adit, with exposed ore



Photo 4. Northeast facing adit



Photo 5. Northeast facing adits



Photo 6. Northeast facing adits



Photo 7. Waste debris sloughing down slope



Photo 8. Mine site

Part VII Contacts Reports and InformationName: Stanley Edison (928) 871-6861Eugene Esplain (928) 871-7331Title or official role (if any) Navajo EPA Superfund ProgramAddress PO Box 2946, Window Rock, AZ 86515Information provided Lead Regulatory Agency

Name _____

Title or official role (if any) _____

Address _____

Telephone number _____

Information provided _____

Name _____

Title or official role (if any) _____

Telephone number _____

Information provided _____

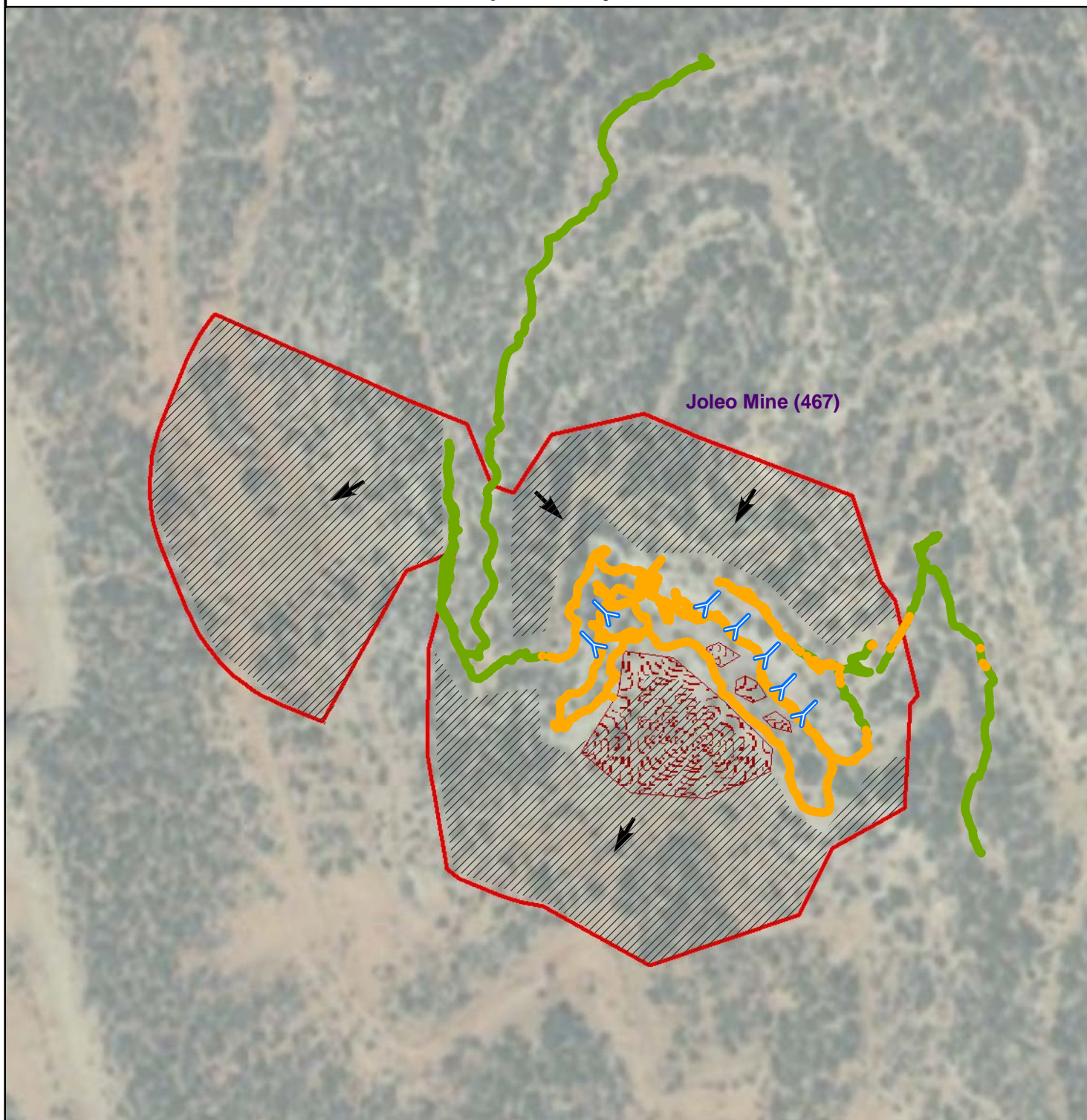
Name _____

Title or official role (if any) _____

Telephone number _____

Information provided _____

**Figure 1 - Gamma Radiation Measurements, Above Two Times Background
Joleo Mine (467)
Round Rock Chapter, Navajo Nation, Arizona**



Legend

Gamma Radiation Measurements

- < 2X Background
- > 2X Background

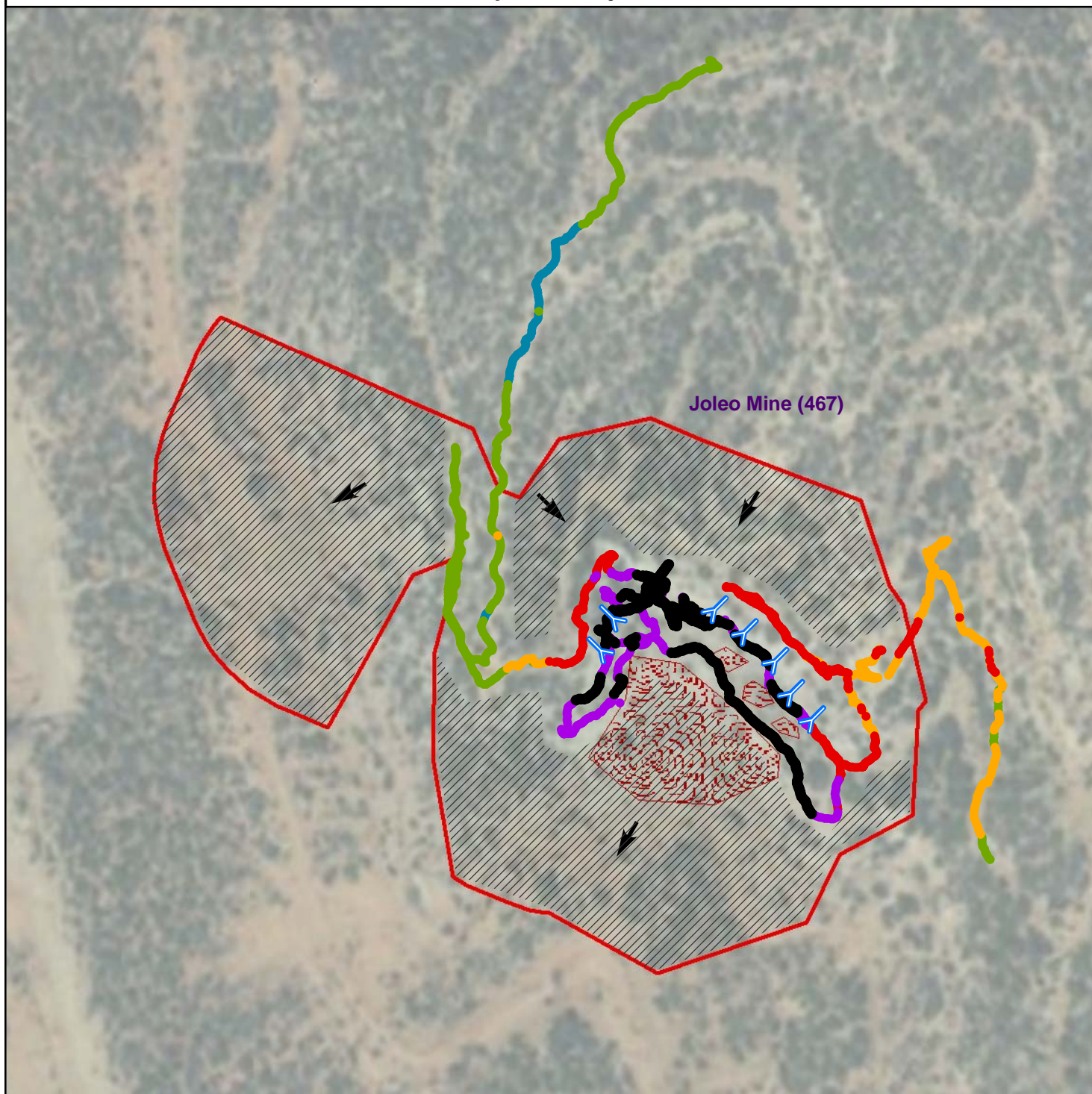
Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 10,407 cpm

- Observed Adit
- Observed Waste Pile
- Inaccessible due to steep grades
- General Direction Down-Slope
- Mine Claim Boundaries



**Figure 2 - Gamma Radiation Measurements
Joleo Mine (467)
Round Rock Chapter, Navajo Nation, Arizona**



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000



Observed Adit



Observed Waste Pile



Inaccessible due to steep grades



General Direction Down-Slope



Mine Claim Boundaries

**Gamma survey conducted 10/2009
Measured as counts per minute (cpm)**

Average background = 10,407 cpm



0 200 Feet



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